

ABSTRACT OF THE DISCLOSURE

For suppressing decomposition of an organic group (for example, a CH₃ group)
5 which is bonded to an Si atom of an organic SOG film for use in a flattening process at
the time of an ashing process, there is provided a method comprising the steps of:
forming an organic SOG layer directly on a lower wiring layer or on a predetermined
film including a hillock protection layer which is formed on the lower wiring layer in
advance; forming an upper wiring layer on the organic SOG layer without using an
10 etching back process; forming a via hole through an etching process by using a patterned
resist layer provided on the upper wiring layer as a mask; performing an ashing process
with a plasma by making ions or radicals which are induced from oxygen gas as a main
reactant, under an atmospheric pressure ranging from 0.01 Torr to 30.0 Torr; and filling
said via hole with a conductive material so as to electrically connect the lower wiring
15 layer to the upper wiring layer.